

LASER IGNITION OF COATED PETN BY MILLISECOND DURATION PULSES

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Thermal initiation of PETN, coated with a thin layer of CuO, was performed by laser millisecond duration pulses. The dependence of the threshold of launching the exothermic reaction on the thickness of the light absorbing coating was studied. It has been found that the formation of the focus of the exothermic reaction does not always lead to the initiation of the entire sample. An analytical model describing the initiation of the exothermic decomposition reaction in the surface layer of the sample was developed. The effectiveness of the initiation of the explosion decreases with the increase in the thickness of the absorbing layer. This may be due to energy consumption for thermal decomposition of CuO forming Cu₂O.

Keywords: *laser initiation, absorbing layer, copper (II) oxide, heat transfer simulations.*